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EXAMINER

CHAMBERS, TANGELA T

ART UNIT

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2617

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|--|--|--|
| Office Action Summary | Application No. 10/562,927 | Applicant(s) ASCOLESE ET AL. | |
| | Examiner TANGELA T. CHAMBERS | Art Unit 2617 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 33,36-45,48,51-60,63 and 64 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 33,36-45,48,51-60,63 and 64 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment and arguments filed on 9/25/2008.
2. Claims 1-32, 34-35, 46-47, 49-50 and 61-62 have been cancelled.
3. Claims 33, 36-42, 48, 51-60 and 63-64 have been amended.
4. Claims 33, 36-45, 48, 51-60 and 63-64 are rejected.

Claim Objections - 35 USC § 112 Fourth Paragraph

5. **The claims are objected to because of the following informalities:**

Claims 44 and 45 include every limitation previously presented in claim 33, and claims 59 and 60 include every limitation previously presented in claim 48. When a claim in an application fails to further limit a claim from which it depends, the dependant claim is considered improper. It is suggested that claims 44-45 and 59-60 be cancelled. See MPEP § 608.01(n).

Response to the Arguments

6. The applicant's arguments filed on 9/25/2008 have been fully considered, but they are not persuasive. In the Remarks, the applicant has argued in substance:

(1) The applicant argued features within amended claim 1, i.e., receiving user credentials from at least one user at an access network and forwarding the user credentials to an authentication function at said access network.

Response:

- (1) Amended claim 1 reads upon Ahmavaara in view of the Diameter Base Protocol standard. Specifically,

Ahmavaara discusses a user sending its credentials to the access network. Thus Ahmavaara shows the limitation of "receiving from said at least one user, user credentials at said access network".

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Ahmavaara discusses the user creating a network access identifier (NAI) that must comply with the NAI format in order for the user to be routed to the selected network. Thus Ahmavaara shows the limitation of “forwarding said user credentials to an authentication function at said access network”.

As a result, amended claim 1 is shown by Ahmavaara as modified by the Diameter Base Protocol standard.

(2) Regarding the applicant’s arguments within several of the dependencies, Ahmavaara shows those limitations, or Ahmavaara as modified by the secondary references show those limitations.

(3) In response to the applicant’s argument that the references are not combinable, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

(4) In response to applicant’s argument that the secondary references are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant’s endeavor or, if not, then be reasonable pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, all references are exchanging information to authenticate users in supported visited networks and therefore are analogous.

(5) In response to applicant’s argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention

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where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the suggestion to combine the references was shown within the secondary references as cited in the motivation statements and can also be found within the background of the secondary references.

As a result, the argued features read upon the references as follows:

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 33, 36-37, 39, 41-45, 48, 51-52, 54, 56-60 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmavaara et al (Ahmavaara) (US Patent Publication No. 2004/0066756 A1), in view of technical standard entitled "Diameter Base Protocol" dated December 2002 by Pat R. Calhoun, John Loughney, Erik Guttman, Glen Zorn and Jari Arkko, AAA Working Group (Diameter).

As per claims 33, 44-45, 48 and 59-60, Ahmavaara discloses:

- ***A method for giving to at least one user access to a respective home operator over a communication network, said access being via an access network and through any of a plurality of supported visited networks***, (Ahmavarra, Fig. 1 and Page 2, Paragraph [0020], "The access network may route the connection of the UE to at least one other network associated with the at least one access network

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identification.” ... “The at least one other network may be a roaming PLMN network connected to a home PLMN network.”).

- ***said at least one user is given the possibility of selecting one of said supported visited networks as the path for reaching said respective home operator***, (Ahmavarra, Page 1, Paragraph [0011], Page 3, Paragraph [0030] and Page 4, Paragraph [0078], “The UE supporting network selection may implement automatic or/and manual selection of a roaming network.”).

- ***receiving from said at least one user, user credentials at said access network***, (Ahmavaara, Page 1, Paragraph [0013], Page 3, Paragraph [0032] and Page 4, Paragraph [0088] and Pages 4-5, Paragraph [0090]), Ahmavaara teaches the user sending its credentials to the access network.

- ***forwarding said user credentials to an authentication function at said access network***, (Ahmavaara, Page 3, Paragraph [0032] and Page 4, Paragraphs [0088]-[0089], “When the UE has selected the SSID, the UE creates the RADIUS realm from the selected SSID and adds this realm to the end of the user identity complying to the network access identifier (NAI) format. Since the concatenated user identity complies with the NAI format, the authentication is first routed to the selected backbone network.”), The NAI created must be authenticated by the access network before it is forwarded.

- ***retrieving a set of available roaming networks for said at least one user, thus retrieving a list of operators holding a roaming agreement with said respective home operator of said at least one user***; (Ahmavaara, Fig.1 and Pages 2-3, Paragraph [0026], “The communication of the SSID's from visited PLMN's 1 and 3 to the visited PLMN2 is illustrated as the arrows SSID PLMN1 and SSID PLMN2 being transmitted to the visited PLMN2. The visited PLMN2 transmits the identity SSIDs of the visited PLMN1 and the PLMN2 to the WLAN access zone. Also, the identity of SSID of the PLMN3 is passed directly to the WLAN access zone.”).

- ***forwarding said list to said at least one user***, (Ahmavaara, Page 1, Paragraph [0010] and Page 3, Paragraph [0027], “The information about available backbone networks is communicated by the WLAN AP to the UE in the form of WLAN SSIDs.”).

- ***receiving from said at least one user at said authentication function an identifier of an operator selected from said list***, (Ahmavarra, Page 1, Paragraph [0013], Page 3, Paragraph [0032] and Pages 4, Paragraphs [0080] and [0082], “If the WLAN UE supports the roaming network selection, the UE may select to which of the available backbone networks the WLAN AN may direct the user.”).
- ***forwarding to the operator identified by said identifier a user's authentication request***, (Ahmavarra, Page 3, Paragraph [0032] and Page 4, Paragraphs [0088]-[0089]).

Ahmavaara discloses supported visited networks and authentication requests but does not specifically disclose the following limitations. However, Diameter in an analogous art discloses:

wherein at least one of said supported visited networks comprises:

- ***a proxy/relay agent for those authentication requests that must be forwarded towards an identified operator***, (Diameter, Page 14, Sections: Diameter Agent and Diameter Node, Page 15, Section: Proxy Agent or Proxy, Page 16, Section: Relay Agent or Relay and Page 24, Section 2.8 - Page 26, Section 2.8.2, “Relay Agents are Diameter agents that accept requests and route messages to other Diameter nodes based on information found in the messages (e.g. Destination-Realm).” ... “Similarly to relays, proxy agents route Diameter messages using the Diameter Routing Table.”), Diameter teaches both relay and proxy agents as part of the access and visited networks.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of the Diameter Base Protocol standard into the teaching of Ahmavaara to include a proxy/relay agent in a supported visited network. The modification would be obvious because one of ordinary skill in the art would only want way to route messages from multiple authentication sources to the appropriate destination in a secure manner. (Diameter, Pages 24-25, Section 2.8).

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- ***a redirect agent for those authentication requests that have an unknown realm***, (Diameter, Page 14, Sections: Diameter Agent and Diameter Node, Page 16, Section: Redirect Agent, Pages 24-25, Section 2.8 and Pages 26-27, Section 2.8.3, “[R]edirect agents do not relay messages, and only return an answer with the information necessary for Diameter agents to communicate directly[.]”), Diameter teaches a redirect agent as part of a visited network.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of the Diameter Base Protocol standard into the teaching of Ahmavaara to include a redirect agent into a supported visited network. The modification would be obvious because one of ordinary skill in the art would only want a way to allow clients and servers to communicate directly as well as provide an alternate route for messages of certain types. (Diameter, Page 16, Section: Redirect Agent).

- ***redirecting to all said supported visited networks the authentication requests whose realm does not correspond to any realm identified at said access network; and returning from said supported visited networks to said access network redirect notifications as well as contact information to said user's respective home operator***, (Diameter, Figure 3 and Pages 26-27, Section 2.8.3, “The message is forwarded by the NAS to its relay, DRL, which does not have a routing entry in its Diameter Routing Table for example.com. DRL has a default route configured to DRD, which is a redirect agent that returns a redirect notification to DRL, as well as HMS' contact information. Upon receipt of the redirect notification, DRL establishes a transport connection with HMS, if one doesn't already exist, and forwards the request to it.”).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of the Diameter Base Protocol standard into the teaching of Ahmavaara to redirect authentication requests with an

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unknown realm. The modification would be obvious because one of ordinary skill in the art would only want to be able to route messages which do not have an entry within the Diameter Routing Table. (Diameter, Pages 26-27, Section 2.8.3).

As per claims 36 and 51, Ahmavaara further discloses:

- ***including the user credentials in said user's authentication request.***

(Ahmavarra, Page 3, Paragraph [0032] and Pages 4, Paragraphs [0080] and [0088]-[0089]), Ahmavaara teaches including the user credentials in the authentication request.

As per claims 37 and 52, Ahmavaara further discloses:

- ***assigning to said at least one user an NAI identifier;*** (Page 4, Paragraphs [0079]-[0086]), Ahmavaara teaches assigning the user a network access identifier.

- ***identifying said at least one user through the realm part of said NAI identifier.*** (Page 4, Paragraphs [0079]-[0086]), Ahmavaara teaches identifying the user using the realm portion of the network access identifier.

As per claims 39 and 54 Ahmavaara further discloses:

- ***said access network has a direct roaming agreement with said user's respective home operator, comprising the step of forwarding to said at least one user a list including said user's respective home operator only.*** (Ahmavaara, Fig. 1, Page 1, Paragraphs [0009]-[0014], Pages 2-3, Paragraph [0026] and Page 4, Paragraphs [0060]-[0065] and [0076], "The UE always tries first to connect directly to the home network which is Home PLMN 4 which includes the UE's home location register (HLR)."), Ahmavaara discloses that an order of connection may be used by a user in selecting a network. Only if the home network is not available does the user try to connect to visited networks broadcast by the access point.

As the user always tries to connect to the home network first, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the list provided by the access point contain only the identification of the home network

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when a direct roaming agreement exists with the user's home network.

As per claims 41 and 56, Ahmavaara further discloses:

- ***proxying said user's authentication request from said operator identified by said identifier to said user's respective home operator.*** (Ahmavaara, Fig. 1, Page 3, Paragraph [0032], Page 4, Paragraphs [0087]-[0089] and Page 5, Paragraph [0091], "The user authentication to be performed may still involve AAA roaming (proxying) or mobile application part (MAP) roaming towards the users home network.").

As per claims 42 and 57, Ahmavaara further discloses:

- ***selecting said authentication function as an EAP based function.*** (Ahmavaara, Page 4, Paragraphs [0080] and [0085]-[0086] and [0089]), Ahmavaara teaches using an authentication function based on Extensible Authentication Protocol.

As per claims 43 and 58, Ahmavaara discloses access and supported visited networks but does not specifically disclose:

- ***including in at least one of said access network and said supported visited networks a Diameter node.*** However, Diameter in an analogous art discloses the above limitation. (Diameter, Page 14, Sections: Diameter Node, Diameter Agent, Diameter Client and Diameter Server), Diameter teaches that a Diameter node may be a part of the access and visited networks by disclosing that a node may be a client, agent or server.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of the Diameter Base Protocol standard into the teaching of Ahmavaara to include a Diameter node in an access and supported visited network. The modification would be obvious because one of ordinary skill in the art would only want a secure way to communicate data across networks. (Diameter, Page 15, Section: End-to-End Security).

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As per claim 63, Ahmavaara further discloses:

- ***in the form of an IP network*** (Ahmavaara, Abstract and Page 1, Paragraph [0011] – Page 2, Paragraph [0021]), Ahmavaara teaches the network being an internet protocol (IP) network.

Claims 38 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmavaara et al (Ahmavaara) (US Patent Publication No. 2004/0066756 A1), in view of technical standard entitled “Diameter Base Protocol” dated December 2002 by Pat R. Calhoun, John Loughney, Erik Guttman, Glen Zorn and Jari Arkko, AAA Working Group (Diameter), and in further view of Thomas (US Patent No. 6,421,339 B1).

As per claims 38 and 53, Ahmavaara discloses receiving and forwarding user credentials and retrieving a set of available roaming networks but does not specifically disclose:

- ***said steps of receiving and forwarding user credentials and retrieving a set of available roaming networks is performed only once, when a first authentication request is received by said authentication function in respect to a user for which no direct roaming agreements exist with said user's respective home operator.***

However, Thomas in an analogous art discloses the above limitation. (Thomas, Column 3, Line 60 – Column 4, Line 30 and Column 6, Lines 20-42, “After arriving at the visited network, the roaming user registers with a visited gatekeeper. The visited gatekeeper authorizes the registration by determining the network of the roaming user and that a roaming agreement exists between the visited and home network.”), Thomas teaches that the user credentials are authenticated and if no direct roaming agreement exists, the user is not allowed to roam and no further action occurs.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of the Thomas into the teaching of Ahmavaara to forward user credentials and retrieve a set of available roaming networks only once when no direct roaming agreement exists. The modification would be

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obvious because one of ordinary skill in the art would want to only allow users authorized to roam within a visited network the ability to roam. (Thomas, Column 6, Lines 20-42).

Claims 40 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmavaara et al (Ahmavaara) (US Patent Publication No. 2004/0066756 A1), in view of technical standard entitled "Diameter Base Protocol" dated December 2002 by Pat R. Calhoun, John Loughney, Erik Guttman, Glen Zorn and Jari Arkko, AAA Working Group (Diameter), and in further view of Basilier et al (Basilier) (US Patent No. 6,728,536 B1).

As per claims 40 and 55, Ahmavaara discloses an access network having a direct roaming agreement with a user's home operator, but does not specifically disclose:

- ***said access network has a direct roaming agreement with said user's respective home operator, comprising the step of directly forwarding the user's authentication request to said user's respective home operator.*** However, Basilier in an analogous art discloses the above limitation. (Basilier, Column 1, Lines 38-48 and Column 5, Line 60 –Column 6, Line 30, "For the example given above wherein the AAA-F 118 contains roaming information regarding the mobile terminal 102, the AAA-F 118 would analyze the received IMSI digits in the NAI and through internal tables locate the appropriate AAA-H 110."), Basilier teaches that when a roaming agreement exists between the access and home network, the authentication request is routed to the home network for authentication.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of the Basilier into the teaching of Ahmavaara to route an authentication request to the home network when a direct roaming agreement exists. The modification would be obvious because one of ordinary skill in the art would only want an efficient way to transmit access specific information from an access network to a home network. (Basilier, Column 1, Lines 9-14).

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Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmavaara et al (Ahmavaara) (US Patent Publication No. 2004/0066756 A1), in view of technical standard entitled "Diameter Base Protocol" dated December 2002 by Pat R. Calhoun, John Loughney, Erik Guttman, Glen Zorn and Jari Arkko, AAA Working Group (Diameter), in view of Thomas (US Patent No. 6,421,339 B1), and in further view of Basilier et al (Basilier) (US Patent No. 6,728,536 B1).

As per claim 64, it is rejected under the same reasons set forth in connection of the rejections of claims 33 and 36-45, and further Ahmavaara discloses:

A computer program product loadable into a memory of at least one computer and being encoded on a computer readable medium, the computer program product including software code portions for performing the steps of any one of claims 33 or 36-45, (Ahmavaara, Abstract and Page 1, Paragraphs [0010]-[0014], "The UE selects the backbone network based on the available SSIDs. SSIDs containing a PLMN-ID may be linked to branded networks based on the information stored in WLAN UE client software.").

Conclusion

8. The prior art not relied upon but considered pertinent to applicant's disclosure is made of record and listed on form PTO-892.

Applicant's amendment necessitated the new ground(s) of rejection presented in this office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP §706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TANGELA T. CHAMBERS whose telephone number is 571-270-3168. The examiner can normally be reached Monday through Thursday, 9:00am-6:30pm Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro, can be reached at telephone number 571-272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tangela T. Chambers/

Patent Examiner, Art Unit 2617

November 21, 2008

/NICK CORSARO/

Supervisory Patent Examiner, Art Unit 2617